

Application Serial No. 10/593,990
Reply to Office Action of April 5, 2010

PATENT
Docket: CU-5127

REMARKS

Preliminary comments

Claims 1-141 were filed in the application. Claims 41, 48, 49 and 59-141 were withdrawn from consideration. Claim 29 is cancelled by the present amendment. Claims 1, 17, 28, 47, 57 and 58 are currently amended. Claims 2-16, 18-27, 30-40, 42-46 and 50-56 remain as originally filed. Therefore, claims 1-28, 30-40, 42-47, and 50-58 are submitted for examination.

Claim Rejections – 35 USC § 112

Claims 17, 28, 47, 57 and 58 stand reject under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Regarding claims 17 and 28, the term "valve-cavity" has been replaced by the term "valve cavity" which is disclosed in paragraph [0091] of the description and referenced by reference numeral 76 in Figure 5.

b. Regarding claim 47, the term "being adapted to be actuated" has been replaced by "being adapted to be submitted to centrifugal forces". The foregoing is supported throughout the description as the microfluidic cells of the present application are submitted to a centrifuge in order to cause the fluids therein to flow to the reaction chamber.

c. Regarding claim 57, the term "auxiliary" has been removed before the expression "microfluidic flow cell". Claim 57 now more clearly states that the removable member can also be a microfluidic flow cell. Support for the foregoing can be found in paragraph [0109] of the description which states that two microfluidic flow cells can be interfaced with each other and as such one of the two acts as a removable member.

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d. Regarding claim 58, the term "support cavity" has been replaced by the term "cavity". The foregoing is supported by paragraph [0108] of the description with reference to Figure 10 which describes that the support member 162 (i.e. the removable member) comprises a cavity 164 that defines a reaction chamber 163 when interfaced with the microfluidic flow cell 166. Claim 58 has also been amended to delete reference to a reaction cavity.

It is believed that claims 17, 28, 47, 57 and 58 are now in compliance with 35 U.S.C. 112, second paragraph. The Examiner is requested to withdraw this rejection of the claims.

Claim Rejections – 35 USC § 102

Claims 1-4, 7-15, 19, 29-36, 38 and 47 stand rejected under 35 U.S.C. 102(b) as being anticipated by Mathies.

Claim 1 has been amended in order to state that the dispensing portion is in fluid communication with the external environment of the microfluidic flow cell. The foregoing addition is supported by former 29, which has been cancelled. Furthermore, Claim 1 has also been amended in order to add that the microfluidic flow cell is adapted to allow for excess fluid in the reaction chamber to flow into the external environment via the dispensing portion. The foregoing is supported by paragraph [0101] of the description which states that: *"The microfluidic cell 46 also includes an evacuation duct 96 in fluid communication with the reaction chamber, providing for excess or waste fluid to flow there through into the ambient environment or on the support 48 via aperture 97. With reference to FIG. 5, duct 96 is formed by a duct cavity 98 when interfaced with support 48."* The evacuation duct 96 (see Figure 3) and the dispensing portion 39 (see Figure 1), as well as the waste dispensing ducts 115 (see Figure 6) and 121 (see Figure 7) are equivalents. Therefore, an evacuation or

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dispensing duct is a dispensing portion. Of course, a duct comprises a channel.

Regarding former claim 29, the Examiner states Mathies et al. teaches that the microfluidic flow cell further comprises a dispensing portion (the Examiner asserts that this channel 234 in Mathies et al.) in fluid communication with the reaction chamber (the Examiner references figures 1-2 and paragraph [0089] in Mathies et al.). Applicants respectfully contend that claim 29 reads as follows: "*A microfluidic flow cell according to claim 1, wherein said dispensing portion is in fluid communication with the external environment of said microfluidic flow cell*" (our emphasis). The Mathies et al. citation does not teach that channel 234 is in communication with the external (or ambient) environment.

The role of the dispensing portion in claim 1 is to evacuate or dispense air or waste from the reaction chamber into the ambient environment, therefore, providing a more efficient reaction in the reaction chamber which can allow for clearer results to be obtained.

Mathies et al. does not teach a dispensing portion as now defined in amended claim 1 and as such, it is believed that claim 1 is now patentable over Mathies et al.

As claims 2-4, 7-15, 19, 29-36, 38 and 47 are all ultimately dependent on claim 1, it is believed that these claims are also patentable over Mathies et al. Withdrawal of this rejection is respectfully solicited.

Claim Rejections – 35 USC § 103

Claims 5, 16-18, 37, 50-53 and 56-58 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mathies et al.

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Since claims 2-4, 7-15, 19, 29-36, 38 and 47 are all ultimately dependent on claim 1 as amended, it is believed that these claims are also patentable over Mathies et al.

Claims 6, 20-28, 54 and 55 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Mathies et al in view of Parce et al.

Claims 39-40, and 42-44 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Mathies et al in view Chen et al.

Claims 45 and 46 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Mathies et al in view Guigan et al.

Applicants contend that none of the cited art teaches a dispensing portion comprising a channel in fluid communication with the reaction chamber and with the external environment of the microfluidic flow cell allowing for excess fluid in the reaction chamber to flow into the external environment via this dispensing portion. Therefore, claim 1 and all its dependencies are believed to be patentable over the cited art. The Examiners arguments regarding claims 6, 20-28, 39-40, 45-46, and 54-55 are believed to be moot in view of amendments to claim 1. Withdrawal of this rejection is also respectfully solicited.

Conclusion

In light of the above amendments and arguments this application is believed to be in full condition for allowance.

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Respectfully submitted,



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